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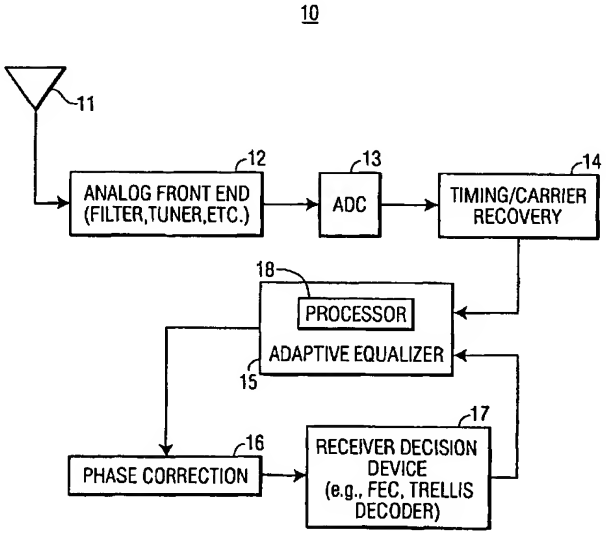
(54) Title: TRANSFORM-DOMAIN SAMPLE-BY-SAMPLE DECISION FEEDBACK EQUALIZER



(57) Abstract: A method for performing equalization on an input signal in a receiver creates multiple delayed samples of the input signal and orthogonally transforms each of the delayed input samples before weighting them using transformed adaptive coefficients. The weighted orthogonally-transformed delayed input samples are summed along with a feedback signal and the result is output as the equalizer output signal. In a first exemplary embodiment, the feedback signal is formed from delayed samples of a receiver decision signal, which are orthogonally transformed, then weighted using transformed adaptive coefficients, and finally summed and fed back as feedback signal. In a second exemplary embodiment, the feedback signal is formed from delayed samples of a receiver decision signal, which are weighted using adaptive coefficients, and finally summed and fed back as the feedback signal.

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